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INTEGRATION OF INFORMATION FOR HOSPITAL RATE SETTING

VOLUME 3: INFORMATION PROBLEMS EXPERIENCED IN
REGULATED PUBLIC UTILITIES AND PARALLELS
IN HOSPITAL RATE SETTING

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INTEGRATION OF INFORMATION FOR HOSPITAL RATE SETTING

VOLUME 3: INFORMATION PROBLEMS EXPERIENCED IN REGULATED
PUBLIC UTILITIES AND PARALLELS IN HOSPITAL
RATE SETTING

by

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PREFACE

This paper was written as part of a project whose task it is to explore the types of information needed by hospital rate setting bodies, and some of the obstacles to its proper integration and use. The working papers in the project series examine different types of obstacles that stand in the way of rate setters' access to and informed use of the kinds and quality of data they require to make rate decisions that are in line with their programs' goals.

Here, a different perspective to these questions is introduced. The premise is taken that hospital rate regulation must encounter many similar types of problems in securing and using information for their decision making as do the state and federal agencies that have long been responsible for the economic regulation of other types of industries. The authors attempt to delineate these problems and identify the commonalities.

The analysis is timely, given today's contradictory trends in economic regulation. Administration and Congressional critics of economic controls on the natural gas, airline and various other industries are pushing vigorously to deregulate. Paradoxically, a number of state governments have recently introduced new rate setting controls on hospitals, and Congressional committees are seriously weighing the merits of introducing rate regulations under federal programs. This may reflect a belief that the problems associated with regulating hospital rates are different and less complex than those encountered in similar regulation of other industries. While it is beyond the scope of this paper to address this question in its entirety, some of its important components are examined.

Readers who are currently engaged in hospital rate regulation will discover for themselves a wealth of parallels between the problems they now face and those long experienced by regulators of other industries. They will also find certain major differences. For the benefit of the more general reader, some of these more obvious parallels and differences are spelled out explicitly.

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INTRODUCTION

In the United States, the hospital industry, largely composed of nonprofit institutions, is becoming subject to increasing economic regulation by government. As of 1975, hospital rates or charges are being determined prospectively by nine states either by regulatory commissions or by other state agencies. The purpose of such regulation is to put a lid on the rapid increase in the cost of hospital care to the public while maintaining an acceptable level of quality in the services rendered to patients. A corollary purpose in many states is to ensure that the financial requirements of hospitals are fully met through the rates that are established.

All of this strikes a familiar chord to anyone who has been involved with the regulation of private enterprise in this country. Energy, transportation, and communication markets have long been regulated by both state and federal commissions. The results of this intervention have been spotty, with the conflicting objectives of producer and consumer protection often being reconciled with difficulty. As the health industry becomes more subject to economic-regulation it is increasingly important that public policy makers learn from other regulatory experiences so that known pitfalls can perhaps be avoided.

This paper reviews a body of legal and economic literature directed at the problems associated with traditional forms of rate regulation and then notes some major parallels with hospital rate setting. Information problems associated with the regulatory process are the primary focus. A background section deals with some of the concepts general to all regulatory activity, and describes the historical rationale, objectives, and procedures of regulation. The second section discusses the critical types of information problems encountered by commissions with long experience in rate regulation in utilities and other industries. Examples are drawn largely from the electric power, natural gas and railroad industries, regulated by the Federal Power Commission (FPC) and the Interstate

Commerce Commission (ICC). Some of the issues dealt with are uniform accounting systems, allowable costs, allocation and rate base problems, the determination of a fair rate of return, and regulatory delay. Those problems which appear most likely to be encountered in hospital rate setting are selected for special emphasis. A concluding section summarizes these areas of comparability.

The paper is confined primarily to questions of rate regulation. It does not deal with regulation designed to set minimum standards of professional competence, training requirements and product safety guarantees, such as are exemplified in the health industry by state licensing and accreditation activities, and by Food and Drug Administration surveillance. It takes note only in passing of the regulation of market entry.¹

I. THE RATIONALE AND PROCESS OF ECONOMIC REGULATION*

Neoclassical economic theory rests on the proposition that when perfectly competitive markets are free to determine prices and quantities of particular goods and services in an efficient manner then resources are allocated in a socially optimal sense. However, this theoretical structure does not strictly apply in the presence of monopoly power or government intervention, in cases when profit/cost incentives are secondary to other incentives, and where the consumer cannot exercise an informed choice.

Public utilities are a curious mixture of private and public elements; for the most part the organization and management are private, but the central economic decisions are subject to direct governmental regulation. The principal components of this regulation that in concert distinguish a public utility from other parts of the economy are: control of entry, price fixing, and the imposition of an obligation to serve all applicants under reasonable conditions.

There are both legal and economic bases for the placement of regulation on business. In 1877 the landmark case, Munn v. Illinois (94 U.S. 133), established a separate category of businesses "clothed or affected with the public interest." In this instance and in many decisions that followed the courts stated that regulation was justifiably introduced as a means for protecting customers from exploitation by private monopolists. By 1934 the Supreme Court took the position that many types of regulation could be imposed on private industry in service of the public interest as long as the imposition of controls was not "unreasonable, arbitrary, or capricious." This doctrine, set forth in Nebbia v. New York (291 U.S. 502), has allowed state and federal government to extend regulation over many different types of businesses. Once in place, this regulation of activity is restrained

* This section is developed along lines followed by A.E. Kahn, The Economics of Regulation, Vol. 1, New York: Wiley and Sons (1970), pp. 1-9.

from unbridled power over the given industry by means of the Fifth and Fourteenth Amendments which guarantee due process of law. Thus a fair return to property is guaranteed such that no unit of government can arbitrarily confiscate a firm's assets.

The economic rationale for regulating public utilities largely centers on the aspects of natural monopoly. There are circumstances where a single provider serving a given geographic area can provide services at lower costs. Many utilities, for example, exhibit substantial economies of large scale production. Thus, it is considered to be in the common interest to promote these efficiencies. In addition, it is often noted that the regulated industries, as suppliers of essential inputs to other industries, have a profound influence on the size and growth of the entire economy. However, in the face of the broad economic power associated with the concentration of production in the hands of one or a few sellers, the protection of the consuming public becomes an important issue. Thus, historically, public utilities have been granted monopoly powers on efficiency grounds, but regulation has also been seen as a necessary means of controlling the abuses that tend to be exercised by monopolists. -

Economic regulation has also been justified in cases where for one reason or another (i.e., destructive competition or limited space as with telephone and gas lines), it was believed that competition simply would not work well.

Finally, regulation has been undertaken when it was perceived that private markets would not offer an adequate level of quality or safety in the product or service being sold, especially where by the nature of the case the consumer lacks knowledge on which to base intelligent decisions.

Regulatory Commissions, Objectives, and Procedures

Given some of the economic and legal rationale for regulation, let us briefly consider some of the objectives that are ascribed to regulatory commissions and the procedures and methods they invoke to achieve these objectives.

Scholarly debate has identified at least three possible objectives of a commission: 1) consumer protection; 2) producer protection; and 3) income distribution. With respect to the first objective, as already stated, the public may require protection from the monopolistic practices of a single market participant. To accomplish this purpose, a commission would try to force the monopolist to lower prices and produce at a higher level of output than he otherwise would. Even when economic regulation is proposed in the name of the public interest, however, the operative objective may often be, in fact, to protect the producers' interests. Stigler notes that as a rule an industry will consciously acquire its own regulation with the controls designed and operated primarily for its benefit.² Given effective political power it is in the best interest of any group to seek from the state such profit maximizing tools as direct subsidies, entry controls, and protective tariffs.

Finally, commissions sometimes pursue the objective of redistributing income among different groups in society, assuming a function similar to a taxing authority.³ When a commission requires one class of consumers to pay more than the actual cost of a service in order to support the delivery of another service at rates below actual cost it is creating internal or cross subsidies, accepting the inherent inefficiencies as a matter of social policy. Universal telephone service and regulated airline routes are but two examples of "taxation by regulation," where the interests of rural consumers are taken to supersede those of urban consumers.

In studies of the performance of regulatory agencies it has been a perplexing task to sort out which of these objectives, consumer protection, producer protection, or income redistribution, actually predominates in practice.⁴

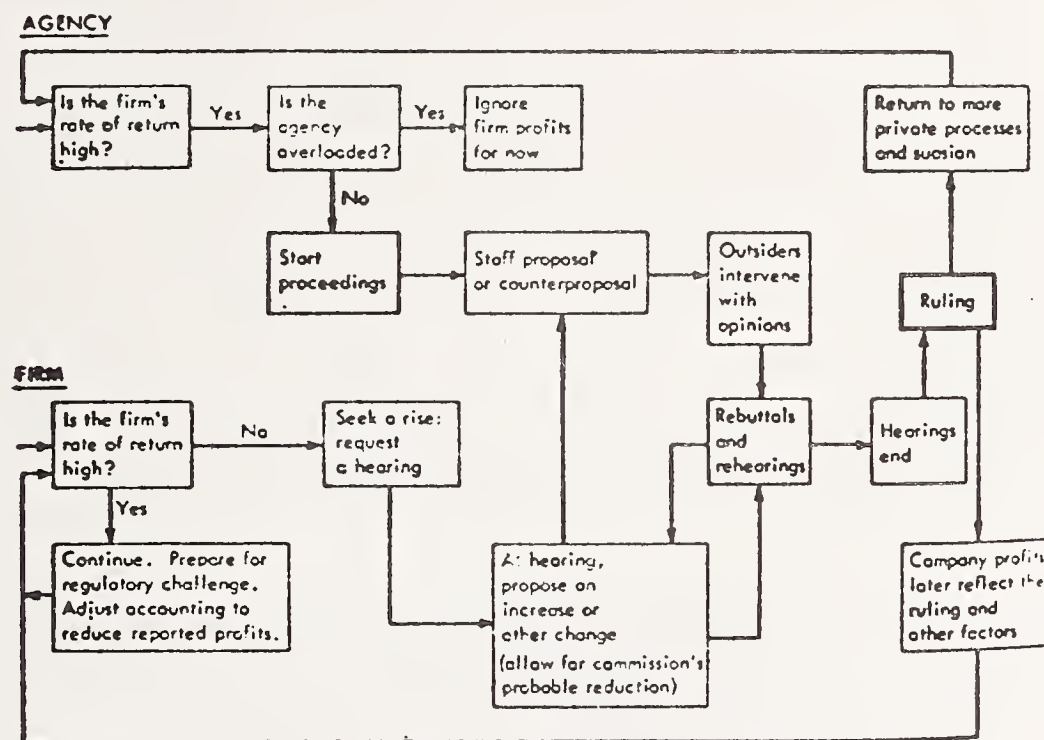
Regulatory commissions have a large variety of powers available to them in controlling their particular industry. Proceedings are usually initiated by requests from the regulated company or from complaints made by customers or competitors. The proceedings can be conducted on either a formal or informal basis. They are generally of the following types: first, those initiated for the purpose of rule-making such as quality control standards or uniform accounting rules; second, those begun for the purpose of settling a contested issue such as a proposed rate change or a license application.⁵

The latter process, typically, will begin with a company applying for a "certificate of necessity and convenience," in order to introduce a regulated product or service into some new market. The certificate application is reviewed in hearings for sufficiency of demand for the proposed service and for adequate capacity of the company to provide the service. These steps are taken to assure the firm's fiscal viability and the quality of service.

After certification is granted and service begins, the reviews of prices are undertaken first by a hearings examiner, then by the commission, and finally, if appealed, by the Federal courts. Once prices or rates are set, surveillance procedures are followed to ensure that the rulings go into effect. It is not uncommon for rate studies or cases to be initiated by the commission itself, but more usually the company requests the price or rate change. Sometimes an informal price review leads to the desired result. In most instances, however, a formal rate case must be started, often a costly and time consuming process. Full "cost of service" studies are completed by both company and commission, pre-hearing conferences are held, hearings

undertaken, and finally a decision is rendered. Normally, the process is one of finding the range of reasonable compromise between the parties (often splitting a difference right down the middle), and then justifying that split to interested parties.⁶ A summary of the typical sequence of key events is shown in Figure 1.

FIGURE 1: TYPICAL SEQUENCE OF EVENTS IN THE RATE REVIEW PROCESS



Source: Wilcox and Shepherd, p. 342.

Throughout the process investigations by company cost experts and executives are required, as well as the services of accountants, economists and lawyers. A large utility may easily spend a quarter of a million dollars in the preparation of a state rate case and subsequent appeals. As for the commissioners themselves, they are generally not experts; often they are politicians who are trying to maintain some sort of public image and minimize public criticism. They tend to identify with the success of their utilities and so usually mingle both a sense of control and identity.

The regulatory agencies have heavy responsibilities. If utilities are inefficient and regulation is not effective in controlling their costs, society bears the burden. If they are efficient but receiving inadequate revenues, the quality of their service will suffer and/or financial failure will threaten.

In choosing the basis on which to make their crucial decisions on certification of entry and rate changes, most regulatory commissions have discarded their early attempts to undertake routine detailed reviews of operating expenses and capital outlays. Because of the inordinately large masses of data involved and the large scale of analytic effort required compared to their available budget and staff resources, they try to keep complex monitoring processes to a minimum. Further, if commissions undertake decision-by-decision reviews of every aspect of a company's operation, in effect, there would be duplicate managements.⁸ Instead, since the 1940s regulators have chosen the administratively simpler and far less costly procedure of simply controlling the margin of net earnings - expressed as a "fair rate of return." Their objective has been to use the rate of return as a single number to work towards in their deliberations, in the hope of reducing the myriad number of particular judgmental decisions they would otherwise be forced to make. However, as we shall see later, they usually find themselves in the position of reviewing and passing on company budgets.

For public utilities, the heart of regulation is the control of price.⁹ By setting a specific set of prices, the limitation of rate of return is purportedly achieved. All other regulatory methods are subsidiary to the price fixing function. Thus cost controls, financial supervision and other strictures are simply means to the end of determining a fair rate of return through the pricing decision. This relatively greater concentration on price rather than quality of service is one reflection of the severe limitations of regulation as an institution of social control of industry.¹⁰

II. INFORMATION PROBLEMS ENCOUNTERED IN ECONOMIC REGULATION

This section describes some of the major substantive types of information problems encountered in economic regulation distilled from the cumulative experience of agencies regulating a number of types of industries. As such, generalizations will be necessary.

Uniform Accounting

The typical regulatory process outlined in the previous section requires large amounts of data on costs, assets, revenues and other accounting information in order to judge the reasonableness of rates of return proposed by companies. Early in the development of regulation in this country it was realized that without some uniformity in accounting procedures the task of regulation would be extremely difficult. We will consider some of the issues involved with uniform systems of accounting including the history and purposes behind various systems, differences among systems, and the underlying causes of these differences.

Clearly the financial information that a firm discloses to the government or the public about its operations is only useful insofar as it is comparable with information provided by other firms in the same industry. This fact was cited in early Congressional hearings as a prime reason for establishing uniform accounting and reporting requirements. The first step toward uniformity for public utilities was taken by Massachusetts in 1876 when its board of railroad commissioners was directed to "prescribe a system in which the books and accounts of corporations, operating railroads or street railways should be kept in a uniform manner."¹¹ Eleven years later in 1887, the Interstate Commerce Commission's (ICC) enabling legislation contained language strongly favoring uniform accounting.

Commissions have also tended to require uniformity in order to

correct certain abuses in accounting. For example, during the early part of this century there were widespread instances of watering of stocks, loading the fixed capital account to inflate the rate base, and generally deceptive or unsound practices of other sorts. In response to this, during the 1920's and 1930's uniform systems of accounts were prescribed by the National Association of Regulatory Utility Commissioners (NARUC) and by several of the federal regulatory commissions. Today the majority of state commissions have adopted one of these systems, although they are often modified in detail to suit local situations or problems. As of 1969, forty-one of the state commissions regulating private electric utilities prescribe the NARUC or FPC systems of accounts, four have their own systems, and two are without uniform systems.¹²

Because regulation is usually introduced in a negative controlling sense, accounting regulations have tended toward the prevention of specific abuses rather than toward the promotion of sound, objective accounting. Also there is a certain disfunctionalism between commission regulations governing the same industry in different geographic jurisdictions. Because different agencies have adopted separate and distinct uniform systems the results have been that:¹³

- 1) there is little comparability of accounting information among companies that are regulated by different agencies, and
- 2) it is difficult to compare regulated companies with unregulated ones in the same industry.

Disuniformity is generally not as much of a severe problem in the case of reports which are submitted to the same agency by different firms.

One of the numerous controversies within the accounting profession as to appropriate methods involves the treatment of taxes. These can either be expensed in the current period or deferred to a later time. This matter can have a significant impact on public utilities as well because current expenses enter into their regulated

return formula. However, little guidance is offered the regulated firm, whereas the unregulated company can rely on the American Institute of Certified Public Accountants to prescribe their set of "generally accepted accounting principles."

Other accounting problems that occur in the regulated sector have to do with: ¹⁴

- 1) the choice of depreciation policies;
- 2) charges to capital or income accounts;
- 3) property valuation; and
- 4) the definition of current assets and liabilities.

Prospects for resolving these difficulties appear dim at present, first because regulator's objectives do not generally coincide with broad uniformity, and second because the accounting profession has not provided adequate guidelines upon which regulators could base a uniform system of accounts. ¹⁵

Other Critical Regulatory Problems

As we have seen, a uniform system of accounts is the basic preliminary requirement to the actual process of regulation in which a firm's fair rate is to be determined. It might be thought that if all companies dealing with a particular regulatory agency maintain their books in a roughly consistent fashion and if commissioners are not subject to ex parte influences, then equitable decisions should flow smoothly from the process. However, as we shall see, the process itself presents a myriad of problems.

In making their judgements commissions devote a great deal of attention to the level of prices or rates. This rate is used as a policy lever to allow the companies to collect the revenues that have been determined to be "just and reasonable." In simple terms the commission is setting a rate of return according to Equation 1:

$$\text{Rate of Return} = \frac{(\text{Total Revenues} - \text{Total Cost})}{\text{Invested Capital}}$$

A slightly more formal approach used by the FPC in setting prices on interstate sales for resale of natural gas is the cost of service method.¹⁶ The maximum permissible price known as required earnings, R, is determined by using the following costing formula, Equation 2:

$$R = PG + Co + \{d_t + r(1 + T) [\sum_1^t (k_t - d_t)]\} / v$$

where

- PG = average field price of all gas purchased,
- Co = unit costs of operation,
- d_t = costs of depreciation for the year t,
- r = average rate of return on the rate base,
- T = rate of tax on income,
- $\sum (k_t - d_t)$ = capital of purchase price for year t,
- k_t = capital of purchase price for year t,
- v = volume of gas.

Thus, the cost of service is defined as the total of gas purchase costs, operating and maintenance expenses on the pipeline, federal and state income taxes, depreciation of past capital investment, and an "acceptable" rate of return on the undepreciated portion of that investment. In rendering their decision on what R should be the commissioners must perform three difficult functions. First, the admissibility of certain costs must be ruled on; second, the size of the rate base must be calculated; and third, a fair rate of return must be determined. Let us now go on to deal with the information problems associated with each of these stages in the regulatory process.

The Admissibility and Allocation of Costs

Typically commissions must decide which costs can be included in the company's computed cost-of-service; and of these costs, which can be charged directly as operating expenses and included in the firm's revenue requirements (i.e., 'Co' in Equation 2, page 12), and which, when capitalized, can enter the cost of service in the form of allowances for depreciation and return on the undepreciated portion of the investment (i.e., 'd_t' in Equation 2, page 12). Commissions also must rule on and determine procedures for the allocation of joint costs between different services. As we have seen, the power to rule on the firm's expenditures is not taken lightly by commissions. The disallowal of certain outlays after the fact could excessively reduce the companies' rate of return, and hence threaten their viability. Therefore, commissions have come to insist on the authority to control company expenditures in advance, by supervising and passing on their budgets.¹⁷

There are numerous reasons for close budget control.¹⁸ First, since required earnings are directly tied to the unit costs of operation a devious company could hide extra profits from its regulator by falsely inflating costs. Second, depreciation expenses could be artfully computed to the benefit of the firm. Third, companies might arbitrarily increase costs on barely useful projects (say of advertising or public relations) from which full overhead benefits are derived while total costs are passed on to consumers. Wasteful use of capital has the effect of inflating the firm's rate base upon which the level of allowable rate of return is calculated (again see Equation 2, page 12). Fourth, regulated companies might pay excessive prices to unregulated affiliates for equipment and services. Fifth, management could vote themselves high, noncompetitive salaries and other emoluments. Again, all of these inefficiencies are paid for by the consuming public. There is no free lunch!

Let us now consider some of the conceptual and technical difficulties associated with regulatory review of cost information. We will focus

primarily on the problem of depreciation expenses, the question of joint products, fixed and variable costs and output measures as these relate to reviews of operating costs.*

Depreciation refers to the gradual decline in the usefulness and value of a particular physical asset. The purpose of accounting for depreciation is to recover from operating revenues the total costs that were involved in the generation of those revenues. Since depreciation expense is deducted from gross or pretax income, many firms, both public and private, choose to accelerate the rate at which they depreciate their asset base in hopes of financing rapid growth. Generally, one of two accelerated depreciation methods are either put at the disposal of public utilities or thrust upon them; flow through or normalization. A minor controversy exists over these two methods. The question is whether or not such practices increase the risk associated with a firm's earnings, and thereby influence the cost of capital for regulated utilities.²⁰

As for the problem of allocating joint costs, the experiences of the ICC are illustrative of the complexities involved. Joint products are ones made from a single batch of raw material or from a single production process. A classic example of joint products is the variety of end products - the hide, the many different cuts of meat, etc. - that are made from the single raw material, the steer. The problem of joint costing is to find some reasonable basis of assigning to the joint products the materials, labor and indirect costs incurred up to a split-off point when certain end products are identified. For the case of rail bed and track maintenance the analogy to the steer is quite appropriate. How should the ICC allocate such costs between the various revenue producing services offered by the railroads? The possibilities for advertant or

* Depreciation will be discussed here because these expenses can be charged to operating costs; in the following section on the rate base accrued depreciation will also be discussed as a deduction from the total value of the firm's assets.

inadvertant cross-subsidization are enormous.

It has been shown in two separate studies that the ICC has made some serious judgmental errors in their cost estimates especially in allocating costs between passenger and freight services in their use of out-of-the pocket costs as an approximation of long run marginal costs.^{21/22} Customarily, allocations of joint costs are made on the basis of revenues derived from various services. This distinction is quite arbitrary since many of the true joint costs must be incurred regardless of the level or division of traffic.

However, a more serious problem than allocation difficulties is the ICC's entire approach to fixed and variable costing. The Commission assumes that 80 percent of all U.S. railroads' operating expenses are variable with output. This so-called "percent variable" parameter is of crucial importance in the rate setting process because it is applied to every firm's estimate of total cost and probably bears no relationship to actual circumstances for any given firm. The effect of the 80 percent assumption is that every railroad is thereby taken to be producing under identical circumstances, i.e., for every ten percent change in output there will be an eight percent change in total cost regardless of what railroad is carrying what product.

Another problem in costing lies with the identification of appropriate output measures, for example, the ICC's use of gross ton-miles as the only relevant unit of output is open to serious question. It is likely that weight is not the only (nor even the most adequate) unit of output for expressing cost relationships.

Still another issue in the area of cost supervision is the admissibility of the cost of regulation as an allowable expense. As already indicated in rate cases, companies spend considerable amounts of money preparing testimony and exhibits, hiring lawyers and experts. These expenditures, if judged reasonable and necessary, are allowed and usually are amortized over a five year period. During appeals of

commission decisions, company motives are crucial. The expenses will generally be allowed if the appeal is taken out in good faith or if the rates established by the commission are found to be confiscatory. However, the costs of appeal may not be allowed if it is deemed that the company is merely trying to delay the enforcement of a commission decision.²³

In this section we have tried to show some of the special conceptual and technical information problems regulatory commissions encounter in the supervision of operating costs. We will now examine their problems in reviewing the base of these costs.

Determining the Size of the Rate Base

In Equation 2, page 12 above, the rate base was defined as the difference between the total usable capital and the accumulated depreciation of these same capital assets. This undepreciated portion of the firm's investment is critically important because the product of this and the rate of return is a significant portion of the revenues that the firm is allowed to earn. A mistake in calculating the rate base when multiplied by the rate of return can have a profound effect on the price paid by the final consumer. The basic difficulty with this part of the regulatory process is that firms and commissions have continuously struggled over the "proper" valuation of the company's property. The crucial questions have been: What is fair value? Should it be based on original, replacement, or market costs?

Arguments over what is to be included in the rate base have been at the heart of the legal and economic history of public utility regulation. In 1898 the case of Smyth v. Ames (169 U.S. 466) established a "fair return on fair value" formula that was followed for decades but which generated endless controversy for its vagueness. These circumstances provoked a famous comment with lasting relevance from Frankfurter and Hart:

The Supreme Court itself has yet been able to furnish no calculus of present value. . . The consequence has been in every important rate fixing proceeding, a pre-occupation, lasting sometimes for years, with contention over fanciful elements in quest of a rate base; that is, a supposedly objective mathematical ascertainment, in fact illusory, of the amount on which the allowable rate of return must be fixed. This procedure has entailed an incredible waste of time and money and inevitably embittered relations between the utilities and the public. . . The whole process is fundamentally an elaborate fiction. In the end rates are fixed which reflect no other reality than that of compromise, reinforced partly by the superior advantage of the utilities in litigation.²⁴

It was not until 1944 with FPC v. Hope Natural Gas Company (315 U.S. 575, 586) that a sense of rationality was injected into the process. In that case, the FPC used a figure based on "actual legitimate cost" and ordered the company to reduce its wholesale gas rates by more than sixty percent.²⁵ Upon appeal the Supreme Court found that, "under the statutory standard of 'just and reasonable' it is the result reached not the method employed which is controlling. It is not theory but the impact of the rate order which counts." So long as the end result is reasonable, "judicial inquiry is at an end."²⁶ Since Hope, rate bases have been determined less by formula and more by "expert" commission judgment. The result has been that regulatory attention has turned from the rate base to the rate of return, and the litigants over the latter have become increasingly skilled and assiduous in developing prolonged, complex, and inconclusive testimony about its proper measurement.²⁷

Before considering the most problematic area in rate regulation one further comment is in order concerning depreciation. As we have pointed out, accumulated depreciation is subtracted from the rate base, but this period's depreciation expense is a legitimate deduction from current income as well. It would be in the interests of the regulated company to have a very small accumulated depreciation account while

current depreciation expenses were very large. If this were possible firms could receive higher revenues from the regulatory process. However, since early in this century commissions have required a consistency between the two accounts, current depreciation expenses and accumulated reserve.

Setting a Fair Rate of Return

With reference to this most intractable of regulatory problems, Supreme Court Justice William O. Douglas argued in Hope Natural Gas,

From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividend on the stock. . . By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and attract capital.²⁸

As we have already noted, since the 1940's most regulatory commissions have relied on the determination of a fair rate of return as their chief policing mechanism. Depending on where the rate is set, commissions can offer incentives to those companies with efficient operations, because they can retain any of the revenues which exceed costs provided that overall boundaries are not exceeded. At the same time, though, commissions must not set rates so high as to deprive eligible consumers from the service. This would seem to justify the limiting of the return to the same level as in some comparable, competitive industry. However, much like Frankfurter and Hart's comments on the rate base, pursuit of the precisely correct fair return is not possible. In actual practice, the end result is usually much more a product of a bargaining process rather than a strictly theoretical determination. Just the same, let us review some of the theory behind rate determination in order that the practical result will be more clearly understood.

As we saw in Equation 2, page 12 above, the average rate of return, r , is multiplied by the rate base to find in part the overall revenue requirements. To see the importance of the actual number, r , consider the FPC-related example. If profits account for approximately twenty percent of total costs of service (a reasonable estimate) then a single percentage point increase in the rate of return, say from five percent to six percent, can lead to a four percent increase in the final price of natural gas.²⁹

Theoretically, the allowed rate of return is directly related to the concept of the cost of capital, which is that rate of return expected by debt and equity holders for an investment with a given amount of risk. The cost of debt capital can generally be estimated in a straightforward manner. It is the cost of equity capital that presents most of the problems in rate of return regulation. Among economists there is a general lack of agreement as to the most appropriate method for estimating the return that investors expect to earn on a firm subject to risk. To oversimplify the problem somewhat, investors purchase securities with an expectation of a firm's future path of earnings, and because it is not yet possible to specify exactly what future earnings will be, the estimation of the cost of equity capital is necessarily an uncertain process. Of course any number of expert witnesses would be willing to generate and defend a particular estimate with a great show of certainty. This is why many formal proceedings have seen estimates of the cost of equity capital range far afield. For example, in a recent AT&T hearing before the FCC the minimum AT&T estimate was 8.2 percent and the maximum was 14.5 percent.³⁰

When presented with such discrepancies, commissions must somehow reconcile them and render a decision. Commissioners must walk a tightrope. They don't want to set the rate so low that it is confiscatory and puts the firm out of business. Also they don't want to be too high and allow revenues that are above the level needed to

guarantee a desired level of quality. In reaching their decision the commissioners will hear considerable testimony regarding the historical costs and financial performance of the company; general market trends in the cost of labor, materials, and capital; and the record of similar firms in comparable industries. How they will sort out this information and reach a decision as to the rate of return is a matter of great complexity. However, certain factors have proven to be predictors of rate hearing outcomes.

In a series of cases before the New York State Public Service Commission (NY-PSC) it has been shown that the allowed rate of return is a function of:

- a) the presentation of the firm,
- b) the presentation of the intervenors,
- c) the judgment of the commissioners, and
- d) the performance characteristics of the firm.³¹

Thus a firm is much more likely to have its request granted if it prepares a detailed analysis of its cost of capital. The rate granted the firm will probably be lower if objectors or intervenors present countervailing testimony. NY-PSC decisions seem to reward firms that are judged to be highly efficient. Also, the commission often appears to adjust the rate of return by an inflation premium in an effort to make up losses that result from regulatory lag in highly inflationary periods. During these times, higher than normal rates may be allowed as a method of anticipating inflation and forestalling the immediate return of the firm to the agency for another rate increase.³²

When the final decision is rendered it is likely that the Commission will err on the high side of the mean of the proposed rates. This bias is due to the structure of the reward system for commissioners. If rates are set too low and businesses fail, with a subsequent loss of service, then commissioners will be in the precarious position of either being without anything to regulate or

being forced out of office for malfeasance. However, if rates are set just a little too high, consumers generally will not complain loudly enough to affect the tenure of the commissioners and continued service will be assured.

This completes the section on the critical problems of regulation - cost supervision, rate base determination, and setting the allowed rate of return. We have attempted to identify the areas where agencies must collect and evaluate large amounts of information in order to pursue the particular objectives of regulation. In many instances it was shown that, aside from the issue of the quality of the data used in the process, the process of regulation itself is fraught with difficulties. Now we proceed to a final topic, regulatory delay, intimately related to the quantity of data required by the process.

Regulatory Delay

Nearly all regulatory agencies have substantial backlogs of work, often resulting in an elapse of several years between the time a firm applies for a rate increase and the final rate decision. A primary cause of these delays is the need to collect and analyze large volumes of data presented to the regulatory agencies, or requested by them in order to comply with procedural requirements for case by case adjudication. This type of regulatory process, requiring that every case be heard on its own merits, permits little generalizing.* A classic example of this type of regulatory delay was the FPC record documented by Landis in 1960.³⁴ At that time, the Commission was so swamped with information as to be almost immobilized. In 1959 its backlog of cases was almost four times as great as two years previous. By September 1960 the FPC had announced that it would take its staff thirteen years to clear up its

* It also tends to result in inconsistent and unpredictable regulation that impedes long range planning by the regulated industry and the formulation of coordinated regulatory policies.³³

2,313 producer rate cases then pending, and that with the new cases expected to be filed over that same period, even if the number of its staff were to be tripled, it could not become current until A.D. 2043.

In an attempt to free itself from this overwhelming burden, the FPC turned to "area rate proceedings" which were designed to obviate the need to hear every producer's request individually. This new procedure entailed demarcating a few large geographic areas throughout the United States that were supposedly homogeneous with respect to the industry's cost of production. After analyzing data to yield industry averages for a given region, the FPC would grant every producer within that area the identical rate of return, regardless of its particular economic characteristics. However, the maneuver proved of little avail. The consolidated area rate reviews turned out to be much more prolonged and complicated than had been anticipated because individual firms sought to prove, usually with ample data for justification, that their situations were very different from the regional averages. To illustrate the delays that attended this grouping approach, the first FPC area rate case began in late 1960 with 351 companies involved; hearings were completed in September 1963; a Commission decision followed in August 1965; and the Supreme Court affirmed the decision in mid-1968. Subsequent FPC performance has not improved. The caseload in 1970 was 71 percent greater than it had been in 1965, while during the same period the proportionate size of the FPC staff and budget steadily declined.

Other causes of regulatory delay stem from insufficient budgets, inadequate staffing (both in numbers and substance), and unclear legislative mandates.

Landis and others argue convincingly that delays in rate decisions are costly both to the firms involved and to society at large.³⁵ They suggest that delay may hamper the progress and efficiency of the regulated industries, and that it can prevent customers from reaping their share of the benefits that might be expected to flow from progress and efficiency.

The first problem may arise from postponement of needed rate increases; the latter when new or improved technologies are not introduced on schedule. Delay is also costly in terms of added time expended by commission staffs, commissioners and regulated firms in the lengthy proceedings.

Other observers, however, present compelling arguments to show that regulatory lag can enable the firm to earn greater than "fair returns" for limited periods of time.³⁶ Unfortunately, there has been little empirical investigation to evaluate the positive or negative effects of delay on the regulated firm and on the broader society. It is evident, however, that to the extent that delay exists, it makes prospective rate determination, in fact, retrospective.

This concludes the analysis of the information problems encountered by commissions that have already had long histories of industry regulation. We will now offer a few summary comments on the overall impact of regulation, and finally, point out some parallels between the experiences of the regulated utility sector and the hospital sector.

Summary

Our review of the collective experience of several industries with rate return regulation has pointed out various impediments to the process of regulation associated with inadequacies in the ability to secure, manage and use information adequate to the task. Although the regulatory commission usually requires individual firms to report information on their operations in a uniform manner, problems were noted with the nature of the cost data that is submitted especially due to problems with the allocation of joint costs and accounting problems with depreciation, etc. In many cases it is very difficult to settle upon a meaningful unit of analysis with respect to the cost data. Also, the data are subject to varying interpretations when presented in the context of a rate of return proceeding where all information can be reviewed and challenged by all parties present. Other problems were noted with

regard to proper methods of asset valuation and the calculation of the rate of return. Both in theory and in practice this last category, the rate of return, is the thorniest of issues in nearly all regulatory proceedings. However, even if all of the data used to determine the rate of return were of sufficient quality and if the amounts of it were not overwhelming, regulation would still have serious problems, first because it tends to protect the regulated firm whenever competition or technological change threatened established firms within the industry, and second, because regulation is generally considered to be static and backward looking. Relying on the information of yesterday to make decisions regarding tomorrow, it is a foe to innovation.*

At the same time, as one reviews the role of regulation, with all its weaknesses, it is important to consider what the consequences might have been had it not existed. On these questions the literature is necessarily for the most part speculative.

III. POINTS OF COMMONALITY WITH HOSPITAL RATE REGULATION

In the mid-1970's the various shortcomings of economic regulation are being noted with increasing frequency by its critics. There are strong proponents of deregulation of airlines, trucking and some energy markets both inside the federal government and out. Yet at the same time, spurred to action by spiraling hospital costs, proponents of hospital rate setting are pushing in precisely the opposite direction. Is the hospital industry sufficiently different so that the problems encountered in the economic regulation of other industries are either irrelevant or easier to resolve? While it is beyond the scope of this paper to address such questions in depth, we will review a few of the more obvious differences and parallels related to problems of information

* Arguments can also be made that regulatory interference with price structure destroys the free market mechanism that inspires efficient production. However, the special character of the hospital industry and the constraints on the informed choice of the hospital patient "consumer" make pursuit of this line of reasoning inappropriate here.

for decision-making.

The legal mandate to hospital rate setting bodies is usually expressed in broad terms. A typical charge is to "establish rates in a manner that will ensure that hospital costs are reasonably related to the efficient provision of services of good quality." In degree of vagueness, such mandates are akin to the previously cited 1898 directive to utility regulators to establish rates that would provide a "fair return on fair value."

The fact that the regulated industries considered in earlier sections of this paper are run for profit, and thus entitled under law to receive a fair rate of return on their invested capital might appear to limit the relevance of their regulatory experience to the hospital industry, which is largely nonprofit. As regards rate setting, however, the difference may be more apparent than real. We saw earlier that the court's interpretation of "fair rate of return" to private industry is designed to provide sufficient funds in the rate to allow firms to meet their operating expenses, service their debts, and allow an adequate margin of working capital. In addition, the rate of return must be sufficient to generate net earnings that will allow a return on invested capital sufficient to attract the new capital needed to replace the firm's facilities, introduce service innovations, etc. Hospitals and other nonprofit organizations have most of these same financial requirements; they differ to the extent of not having to return a share of revenue to investors.^{38/39/*}

A hospital spokesman puts the case as follows:

If a hospital cannot generate net earnings, its capital will shrink. . . A not-for-profit hospital does not return any of

* Some hospital rate regulators, notably Maryland's Health Services Cost Review Commission, deny the validity of the traditional position that hospital rates should include factors for depreciation or other means of capital accumulation for facility replacement. Instead, they hold that the rate should include a capital facility allowance, but only when there is a demonstrable relation to community need. The issue is currently being tested in the courts.

its excess revenues to owners. This fact does not eliminate the need to generate a profit. It only means that the profit does not need to be as great.⁴⁰

Another difference, of course, is that the rate for non-profit hospitals does not have to cover outlays for taxes. On balance, however, in regulatory decisions affecting the size of net margins of revenues over costs the profitmaking and non-profit sectors probably exhibit more commonalities than differences.

Likewise, the decision processes in rate regulation for hospitals involve the same major elements as in utility regulation. First, commissions must rule on the admissability of certain costs and the bases of their allocation. Second, they must make judgments on the allowable size and nature of the rate base. Third, many (but not all) state laws require that the rates or charges that are established be sufficient to enable each hospital to meet its total financial requirements, e.g., a sufficient margin of net earnings analogous to private industry's "fair rate of return." Thus, most of the types of information required to regulate hospital rates are the same as those required to regulate other industries, e.g., operating costs, predicted changes in prices of the materials and services required for production, predicted volume of services, depreciation expense, capital costs and assets accounts, and indicators of service access and quality.*

Uniform Accounting

Like other regulatory commissions, hospital rate setters have already discovered that the financial and activity data they collect from hospitals must conform to a uniform accounting and reporting system to permit scrutiny of out of line base costs, and as a first step to developing valid cost comparisons.⁴¹ However, since rate setting up to now has been

* Other working papers in this series describe in detail the types of information used by rate setting bodies in Maryland, Massachusetts, Arizona, New York and Washington.

conducted exclusively within the boundaries of individual states, different "uniform" systems are springing up in different parts of the nation.* Should the Congress adopt a form of national health insurance that requires federal control or monitoring of hospital rate setting, any resulting federal regulatory body would be confronted by the same inability to make comparative intra- or interregional analyses that plagues most of the other regulatory commissions. This would severely limit the possibility of evaluating regulatory performance itself, thus losing the potential benefits to be gained from comparing the results of the different regulatory approaches employed in different states. Consequently, from the national perspective there is much to be said for making a basic uniform reporting system applicable to all hospitals throughout the country at the outset.**

Securing comparable data from hospitals or firms is only the first of many parallel problems in creating and using information appropriate for setting "just and reasonable" rates. Some of these stem from problems inherent in the nature of the cost data, others have to do with the way information is used in rate setting and appeals processes, and the limited resources usually available for these purposes.***

* Fortunately, so far, most of the new state systems are being modeled on the accounting, cost report and budget report systems developed by the California Hospital Commission. Variants of these are now being used in four states, covering over 800 of the nation's approximately 7,500 hospitals. P.L. 93-641 mandates the development of a uniform accounting and reporting system on a national level but does not mandate its use.

** Another working paper in this series, Hospital Information Systems in the Province of Quebec (R-45-2), by Karin Dumbaugh, describes the standard hospital reports submitted to the federal Ministry of Health in Canada, and the more detailed information system for rate setting developed by the Province of Quebec.

*** Detailed reports describing hospital rate setting programs in five states are available from the Office of Research and Statistics of the Social Security Administration, DHEW. (See references 42, 43, 44 and 45.) Readers will discover many more types of commonalities with other regulatory processes than can be noted here.

Admissibility and Allocation of Costs

Many of the decisions on what costs a rate setting body should allow to be included in a hospital's rate are determined by its governing law and regulations and/or by the reimbursement principles of third party payers such as Medicare, Medicaid, and Blue Cross. However, as with the regulation of other industries, studies indicate that problems inherent in the information generated can seriously becloud implementation.

As in industry, the proper allocation of joint costs constitutes a perennial problem. One example is the way general and administrative costs and costs of various ancillary services are assigned between the inpatient and ambulatory services of hospitals. Although certain conventions are usually prescribed to govern such allocations, the distribution of actual costs may differ widely.⁴⁶ On a microscale proper allocation of personnel costs to different cost centers probably presents far greater difficulties than similar allocations in industry, since both professional and service personnel typically engage in many types of activities that cut across the boundaries of even functional accounts. As an obvious example, a physician during the same fifteen minute encounter with a patient may simultaneously be engaged in patient care, teaching and research.

Finding appropriate units for cost allocation and for comparative output analysis in organizations that provide services, such as universities, courts and hospitals, is fraught with special difficulties. The important inputs to the process are characterized by their complexity and by subtle but often crucial differences in quality; like their outputs - education, justice and health - they do not easily lend themselves to quantitative measurement.

Reference to the severe problems that stemmed from the ICC's selection of inappropriate units for cost allocation and for output measures in the railroad industry should alert hospital rate regulators

to the dangers of uncritical reliance on the statistical units currently employed in hospital accounting. Berki has provided us with a comprehensive analysis of the shortcomings of both hospital input measures, such as "square feet" and output measures such as "patient day", "case", etc.⁴⁷

Like other regulators, hospital rate setters must also cope with the problems of data to show the proportion of hospital costs that are fixed and those that are variable, especially as they seek to make rate adjustments to accomodate to unexpected changes in volume of services. Likewise, there are commonalities in problems of determining the value of capital assets, changes in such values, and in predicting the costs of replacement.

Issues surrounding internal cross subsidies are also similar to those found in other regulated industries. Detection of hidden cross subsidies, both between different types of hospital services, such as a medical-surgical and psychiatric service, or among types of cases, such as between obstetrics and appendectomy case costs, demands tremendously detailed data and herculean tasks of analysis. Also, as with other regulatory agencies, the external reviewers must often make tradeoffs between competing goals of efficiency and social values as they reach decisions on the extent to which internal cross subsidies should be allowed in the rate structure. For example, to what extent should patient care rates subsidize the costs of nurse education?

Determining the Size of the Rate Base

The difficulties that public utilities have encountered throughout their history of efforts in making judgments on the allowable size and nature of the rate base may be particularly instructive to hospital rate setters. Many commissions are now actively exploring ways to "purify" the base year rates of individual hospitals so as to prevent the costs of past and present inefficiencies being automatically projected forward in future rate increases. A currently popular approach involves establishing

a series of cost screens for groups of similar hospitals and for groups of hospital departments to allow mathematical determinations of aberrant situations. If rates are set accordingly, without prior preview of outlier hospitals, the types of litigation that accompanied older methods of public utility regulation may well result. Individual reviews or hearings, on the other hand, will necessarily be expensive in time and money. One must speculate whether some future Frankfurter and Hart will not similarly decry the "preoccupation with. . .a supposedly objective mathematical ascertainment. . .in fact illusory."

Information Problems Associated with Different Rate Setting Processes

In many respects the problems associated with information can be expected to be more difficult in hospital rate setting than in the economic regulation of many other industries. The tightrope to be walked between dangers of overpayment and underpayment is the same, but the risks associated with underpayment can be higher. As hospitals and physicians continually stress in rate hearings, failure to meet the hospitals' financial requirements could directly affect the health and lives of consumers. Rate setters are handicapped by lack of appropriate information in this realm. At present, only crude mechanisms exist with which to monitor the quality of care given to patients in hospitals, or the outcomes to patients that result from different types, levels and mixes of patient care resources. Furthermore, any quality monitoring that may exist, such as hospital infection rates or comparative case mortality, is not available to them. Thus, hospital rate setters avoid the quality issue wherever possible. When pressed, however, they naturally defer to expert hospital and physician opinion.

Certain other special characteristics of the hospital industry also introduce special difficulties. The large number of individual hospitals in the regulatory jurisdiction compared to the small number of firms in most public utility regulatory jurisdictions complicates both the information

management and review processes. Moreover, it has become customary to project each hospital's rates every year, necessitating annual data submissions and updates of analyses. For most public utilities the period between rate adjustments is considerably longer.

Some hospital rate setting bodies tailor rates directly to the circumstances of the individual hospitals as determined by detailed scrutiny of its historical and predicted costs and volumes of services. Others determine rates by application of formulas, setting ceilings on rate increases in relation to average costs in groups of hospitals considered by the regulator to be of a similar type. Some programs combine both methods.

As we have seen, the same approaches are used by other regulatory agencies. During the course of its history regulation of many public utilities has swung from case-by-case determinations to areawide determinations, and then back again to individual reviews. Each method appears to bring its own particular cluster of problems: individual case reviews, it is claimed, favor the producer who manages to make the best presentation, and result in inconsistent decisions; reviews based on group norms ignore the special, unique characteristics of the individual producer. Unless policies of compromise are pursued, both processes appear to lead to legal battles. Hospital rate regulatory bodies find themselves with the same choices. Time consuming cost and budget reviews of individual hospitals may in the end reward those hospitals whose financial management officers present their data in the most rate maximizing fashion. Formula applications may at first appear to be simpler and more objective but in the end may generate appeals and litigation that may be even more time consuming, with hospitals bringing large volumes of data to demonstrate the unique factors that distinguish them from the other hospitals with which they have been grouped. On the other hand, it should be noted that increasingly sophisticated means of grouping hospitals are being developed; if employed they may in the future reduce the volume of hospital rate appeals.⁴⁸

Whichever approach is taken, the problems in organizing and using the information required for decision making may prove even more formidable for hospital rate regulators than for the regulators of many other industries. In a hospital, the number of producing units and "products" are often much larger than in a typical public utility, and, as we have already observed, the nature of health related "products" are much harder to define, and their quality harder to measure. Thus, the types and volumes of data to be managed in hospital rate reviews are enormous. Complex analyses are required whether the reviewers seek to relate production costs to performance measures within a single hospital or whether they seek to compare the efficiency of different producers within the hospital industry. A pervasive regulatory dilemma appears to be that equitable rate decisions demand investments in regulatory agency staff and budget that never seem to be forthcoming, while inequitable rate decisions (at least those that are punitive to the producers), result in protracted attempts at redress. Again, one must reflect on Frankfurter and Hart's observation in the context of utilities regulation that in the end, "rates are fixed which reflect no other reality than that of compromise, reinforced partly by the superior advantages of the producers in litigation."

Setting a Rate of Return to Include Capital Replacement and Growth

Setting a fair rate of return in the hospital industry, e.g., a fair margin of net earnings, can prove to be even more difficult than in other regulated industries. Lacking a market determination of return on "fair value", determinations of an institution's need for funding sufficient to allow replacement of its facilities and equipment and for the introduction of innovations are likely to become more and more closely dependent on allied forms of regulation, especially hospital planning and certificate of need. While several states with rate setting programs are beginning to forge systematic links with such agencies, the effectiveness of planning in the United States has yet to be proved.

Conclusion

As prospective rate setting for hospitals continues over time, one can predict that many of the familiar inadequacies of industry rate of return regulation may well become evident. Commissions will probably not be able to scrutinize and purify base costs in an effective manner. In part this will be because they lack reliable performance standards; in part it will reflect their reluctance to create situations where they could find themselves responsible for decisions that directly involve them in hospital management, such as by rulings on fringe benefits that might make them direct parties to labor disputes. And given the realities of state court system budget constraints, the familiar phenomenon of regulatory delay may well turn much prospective rate setting back to final settlements of accounts that are, in fact, highly retrospective.

The major lesson to be learned from prior experience in other regulatory agencies is that hospital rate regulation should move forward in carefully planned incremental steps, building in reporting systems that will permit continued evaluation, and allowing maximum flexibility for change in the process to reflect the feedback from such evaluation.

However, merely to provide for evaluation is not enough; the objectives to be obtained by hospital rate setting must become more clearly defined than they are at present. In looking at models of regulation we noted that the regulator can assume at least three roles - producer protector, consumer protector, or arbiter of income distribution. Which model best fits which situation presents as much of a quandary in looking at most hospital rate setting bodies as it does when considering the FPC. The problem is that regulatory agencies characteristically see their missions as fulfilling multiple, often conflicting objectives. The presence of these multiple objectives explains why many regulatory efforts, when evaluated in terms of any single objective alone, may appear to have generated more harm than good. There is little reason to believe that hospital regulatory commissions will be any more successful in deciding

which group in society they feel bound to serve. Some state agencies may mainly pursue cost containment goals of third party payers, some may, on balance, champion patient's rights, while still others may predominantly safeguard the interests of providers. Some commissions may try to serve all these masters and may well succeed in pleasing none.

FOOTNOTES

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